Dear customer,

Thank you very much for purchasing our electronic calculator. To fully utilize its features to solve your financial needs, we suggest you study the operating manual to become familiar with its many abilities. If you limit its function, do not touch the insides of the calculator. Never use hand sprays and/or similarly strong key pressing. Extreme cold below 32°F or 0°C, heat above 104°F or 40°C and humidity may also affect the functions of the calculator. Never use volatile fluids such as acetone, thinner, benzene, etc. when cleaning the unit. For servicing contact your retailer or nearby dealer.

* Special care should be taken not to damage the unit by bending or dropping. For example, do not carry it in your hip pocket.

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1/ GENERAL GUIDE

1-1 The keys

In order to keep your calculator as compact as possible, each key has more than one use. You can change the function of a key by pressing certain other keys before it, or by setting the calculator in a certain mode.

The following pages will give you a more detailed explanation of the use and functions of each key.

Inverse key

Some of the keys have brown lettering above or below them. To use a function that is brown lettering, press INV. INV will appear on the display. Then press the key that has the brown lettering identifies. INV will disappear from the display.

Mode key

To put the calculator into a desired operating mode or to select a specific angular unit, press first, then or .

1. SD is displayed. Calculate standard deviation. Page 48
2. DSC mode. Carry out ordinary arithmetic and functional calculations. Page 28
3. BIN is displayed. Carry our arithmetic and logical operations in base 2. Page 35
4. OCT is displayed. Carry out arithmetic and logical operations in base 8. Page 35
5. HEX is displayed. Carry out arithmetic and logical operations in base 16. Page 35
6. DSG is displayed. Use degrees as the unit of angle measurement. Page 41
7. RAD is displayed. Use radians as the unit of angle measurement. Page 41
8. GRA is displayed. Use grads as the unit of angle measurement. Page 42
9. Press any number from 0 to 9 to indicate how many decimal places you want displayed. DF is displayed. Page 44
10. Press any number from 1 (1 digit) to 20 (10 digits) to indicate how many significant digits you want displayed. SCI is displayed. Page 45
11. Releases instructions entered in and . Page 44

General keys

(1) 1 to 8. Data entry keys

To enter numerical values into the calculator, press these keys in their logical sequence. Page 28

9. 0. 1, 2, 3 Basic calculation keys

For addition, subtraction, multiplication, division and to display answers, press these keys in their logical sequence. Page 28.

4. All clear key

Press to clear everything except the contents of the memory.
Clear key
Press \(\#\) to erase wrong entries (including exponential notation) and to erase functional results during mixed calculations. The process of calculation remains unchanged.

Sign change key
\(\#\) changes the displayed number from positive to negative or from negative to positive. If you press \(\#\) after \(\#\), the sign of the exponent will change. Page 9

Memory keys

Memory recall key
Press \(\#\) to display the contents of the Memory. \(\#\) does not clear the contents of the memory. Page 30

Memory in key
Press \(\#\) to put the displayed value into the Memory. The previous value in the Memory will be automatically erased. Page 30

Memory plus and Memory minus key
Press \(\#\) to add the displayed value to the value in the Memory. Press \(\#\) to subtract the displayed value from the value in the Memory. \(\#\) also obtains an answer of 4 basic calculations \(\times\) and \(\div\), and automatically adds (subtracts) it to (from) the contents of the Memory. The answer obtained by this addition or subtraction will be the new value in the Memory. Pages 30 and 31.

Special Keys

Parentheses keys
This calculator calculates in this order: 1) functions, 2) \(\times\) and \(\div\), 3) \(\pm\) multiplication and division and 4) addition and subtraction. To change this order enclose the parts that must be calculated first with \(\#\) and \(\#\). In a single expression, a maximum of 18 nesting parentheses at levels can be used. Page 29

Exponent key
To enter a number in scientific notation, press the correct numbers for the mantissa, \(\#\) and the correct numbers for the exponent. Page 9

Pi key
Press \(\#\) to display the value of \(\pi\), the ratio of the circumference of a circle to its diameter. \(\pi \approx 3.141592654\). Page 41

Sexagesimal notation/decimal notation conversion keys
To change from sexagesimal (base 60) notation (degree, minute, and second) to decimal notation (degrees), enter the degree, press \(\#\), enter the minute, press \(\#\), enter the second and press \(\#\). To change from decimal notation to sexagesimal notation, press the correct number keys for the degree and then press \(\#\). Page 41

Register exchange key
Press \(\#\) to exchange the displayed value (X-register) with the contents of the working register (Y-register). Press \(\#\) again to exchange them again, so that the value that had been displayed previously is displayed again. Page 28

Register exchange key
Press \(\#\) to exchange the displayed number (X-register with the contents of the Memory (M-register), press \(\#\). Press the same keys again to display the originally displayed value. Page 31

Rounding off internal value key
To round off the internal value held in the Y-register so as to be equal to the displayed value. Page 44

(Use in the HEX mode only)
Enter hexadecimal numbers A through F. Page 36

And key
\(\#\) Or key
\(\#\) Exclusive Or key
\(\#\) Negation key

These keys are used for logical operations. Pages 39 and 40.

Function keys
\(\#\), \(\#\), \(\#\) Sine, cosine, tangent keys
Use \(\#\), \(\#\) and \(\#\) to calculate the trigonometric functions. Page 41 and 42.
Arc sine, arc cosine, arc tangent keys

To calculate the inverse trigonometric functions of the displayed value, press \( \boxed{\sin^{-1}} \), \( \boxed{\cos^{-1}} \) and \( \boxed{\tan^{-1}} \). Page 42.

Hyperbolic keys

Press \( \boxed{\sinh} \), \( \boxed{\cosh} \) and \( \boxed{\tanh} \) to calculate the hyperbolic functions of the displayed value. Page 42.

Inverse hyperbolic keys

Press \( \boxed{\sinh} \), \( \boxed{\cosh} \) or \( \boxed{\tanh} \) to calculate an inverse hyperbolic function of the displayed value. Page 42.

Common logarithm and common antilogarithm key

To obtain the common logarithm of the displayed value, press \( \boxed{\log_{10}} \). To obtain the common antilogarithm of the displayed value (to raise 10 to a power), press \( \boxed{10^x} \). Page 43.

Natural logarithm and natural antilogarithm key

To obtain the natural logarithm of the displayed value, press \( \boxed{\ln} \). To obtain the natural antilogarithm of the displayed value (to raise e to a power), press \( \boxed{e^x} \). Page 43.

Square root and square key

Press \( \boxed{\sqrt{\,}} \) to find the square root of the displayed value. To square the displayed value, press \( \boxed{x^2} \). Page 44.

Fraction key

To enter fractions in fraction form, press the correct numerator for the integer of any, \( \boxed{\frac{a}{b}} \), the correct numerator(s) for the numerator, \( \boxed{\frac{c}{d}} \) and the correct denominator(s) for the denominator. By pressing \( \boxed{\frac{a}{b}} \) in succession, the displayed values will be converted to the improper fraction. Pages 32 and 33.

Cube root key

Press \( \boxed{\sqrt[3]{\,}} \) to find the cube root of the displayed value. Page 46.

Reciprocal key

Press \( \boxed{1/x} \) to obtain the reciprocal of the displayed value. Page 44.

Factorial key

To find the factorial of the displayed value, press \( \boxed{\text{FACT}} \). Page 44.

Power key

Press any number \( \boxed{x} \), any number \( \boxed{y} \) and \( \boxed{\text{\textasciicircum} \,} \) to raise \( x \) to the \( y \) power. Page 43.

Root key

Press any number \( \boxed{x} \), \( \boxed{\sqrt[y]{\,}} \) any number \( \boxed{y} \) and \( \boxed{\text{\textasciicircum} \,} \) to display the \( y \) root of \( x \). Page 44.

Rectangular to polar key

To convert displayed rectangular coordinates to polar coordinates, press \( \boxed{\text{POLAR}} \). Page 46.

Polar to rectangular key

To convert displayed polar coordinates to rectangular coordinates, press \( \boxed{\text{RECT}} \). Page 48.

Percent key

To find a percent of a displayed number, press the correct numbers for the percent and \( \boxed{\%} \). Page 33.

Random number key

Press \( \boxed{\text{RAND}} \) to generate a random number between 0.000 and 0.999. Page 45.

Permutation key

Press \( \boxed{\text{PERM}} \) to perform permutation calculations. Page 47.

Combination key

Press \( \boxed{\text{COMB}} \) to perform combination calculations. Page 47.

Statistical keys (Use in the SD mode only)

Statistical register clear key

Before beginning statistical calculations, press \( \boxed{\text{CLR STO}} \) to clear the statistics registers. Page 48.
### Data entry and delete key
In the SD mode, enter data by pressing the correct numbers and [M+] if you enter incorrect data and don’t notice your mistake until after you have pressed [M+]. Enter the same incorrect data and then press [M-] to delete the data. Pages 48 and 50.

### Arithmetic mean key
Press [M+] in the SD mode to get the arithmetic mean (X̄) of the data. Page 48

### Population standard deviation key
Press [M+] in the SD mode to display the population standard deviation (σN) of the data. Page 48

### Sample standard deviation key
Press [M+] in the SD mode to display the sample standard deviation (sN-1) of the data. Page 48

### Sum of square value key
Press [M+] in the SD mode to display the sum of the square value (Σx²) of the data. Page 48

### Sum of value key
Press [M+] in the SD mode to display the sum of the values (Σx) of the data. Page 48

### Number of data key
Press [M+] to display the number of data (N). Page 48

#### 1-2 The display

<table>
<thead>
<tr>
<th>INV</th>
<th>W</th>
<th>K</th>
<th>DEG</th>
<th>RAD</th>
<th>GPA</th>
<th>FIX</th>
<th>SCI</th>
<th>SD</th>
<th>OCT</th>
<th>HEX</th>
<th>EO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

- **Mantissa**: Exponent

The display shows input data, interim results, and answers. The mantissa section displays up to 10 digits. The exponent section displays up to ±99. Pressing [INV] - see page 1. M-: Something is being stored in the Memory - see page 40.

#### 2/Calculation Range and Scientific Notation

<table>
<thead>
<tr>
<th>Normal display</th>
<th>Scientific notation</th>
</tr>
</thead>
</table>

When the answer exceeds the normal display capacity, it is automatically shown by scientific notation. 10-digit mantissa and exponents of 10 up to ±99.

- The minus (-) sign for mantissa
- The mantissa
- The minus (-) sign for exponent
- The exponent of ten

The whole display is read: \(-1.23456789 \times 10^{99}\)

*Entry can be made in scientific notation by using the [E] key after entering the mantissa.*
3/OVERFLOW OR ERROR CHECK
Overflow or error is indicated by the "-E-" or "-C-" sign and stops further calculation.
Overflow or error occurs:
a) When an answer, whether intermediate or final, or accumulated total in the memory is more than $1 \times 10^{100}$ ("-E-" sign appears).
b) When function calculations are performed with a number exceeding the input range ("-E-" sign appears).
c) When binary, octal and hexadecimal calculations are performed improperly (for example, when the allowable number of digits is exceeded after binary, octal or hexadecimal conversion ("-E-" sign appears).
d) When unreasonable operations are performed in statistical calculations ("-E-" sign appears).
e) When the total number of levels of priority and/or implicit priority in addition/subtraction versus multiplication/division including $x$ and $y$ nested parentheses exceeds 6, or more than 18 pairs of parentheses are used ("-E-" sign appears).
Ex: If you have pressed the $\square$ key 18 times continuously before designating the sequences of $\text{CEC}$
To release these overflow checks:
a) $\text{AC}$, $\text{C}$, $\text{cl}$, $\text{cl}$ Press the $\text{AC}$ key.
b) $\text{C}$ Press the $\text{C}$ key. Or press the $\text{C}$ key, and the intermediate result just before the overflow occurs is displayed and the subsequent calculation is possible.

Memory protection:
The content of the memory is protected against overflow or error and the accumulated total is recalled by pressing the $\text{CE}$ key after the overflow check is released by the $\text{AC}$ key.

4/POWER SOURCE
This calculator operates on either dry batteries or AC (with the AC adaptor).

Dry battery operation:
Two A-76 silver oxide dry batteries (UM-3) give approximately 24 hours continuous operation (approx. 28 hours on type RDP (UM-3)).
When battery power decreases, the whole display darkens. Batteries should then be removed. Be sure to switch OFF the power before changing.

Replacement of batteries:
1) Slide open the battery compartment lid on the back of the unit.
2) Remove dead batteries.
3) Insert new batteries with polarity as indicated.
4) Replace the battery compartment lid.

* Be sure to replace both batteries.
* Never leave dead batteries in the battery compartment as they may cause malfunctions.

* It is recommended that batteries be replaced every 2 years to prevent the chance of malfunctions due to battery leakage.

AC operation:
Use only an adaptor (AD 25S) with the same voltage rating (100, 117, 220 or 240V) as your power supply to prevent component damage. Plug the AC adaptor into the AC outlet and the cord into the unit, this automatically cuts off battery power supply.

* WHERE USED FROM THE MAINS, THIS CALCULATOR MUST ONLY BE USED WITH A CASIO MAINS ADAPTOR. THIS IS DUE TO THE RISK OF DAMAGE TO THE CALCULATOR SHOULD IT BE USED WITH A MAINS ADAPTOR OTHER THAN A CASIO MAINS ADAPTOR.

The following misuse may lead to battery burst:
1) Use of an AC adaptor other than a genuine Casio adaptor.
2) Insertion of batteries with incorrect polarities (+, -).

Auto power-off:
If the calculator is left with the power switch at the ON position, the auto power-off function automatically turns off the power in approximately 6 minutes, thereby saving battery life.
5/SPECIFICATIONS

**BASIC OPERATIONS**
- 4 basic calculations, constants for \( e / \pi / \sqrt{2} / \sqrt{3} \) AND OR XOR, parenthesis calculations and memory calculations.

**BUILT-IN FUNCTIONS**
- Trigonometric, inverse trigonometric functions (with angle in degrees, radians or gradians), hyperbolic, inverse hyperbolic functions, common natural logarithms, exponential functions, common antilogarithms, natural antilogarithms, powers, roots, square roots, cube roots, squares, reciprocals, factorials, conversion of coordinate systems \( R \to P, P \to R \), permutations, combinations, random numbers, \& \( \pi \), fractions, percentages, hyperbolic, attabinary, and hexadecimal calculations and logical operations.

**STATISTICAL FUNCTIONS**
- Population standard deviation, sample standard deviation, arithmetic mean, sum of square value, sum of value and number of data.

**CAPACITY**
- Entry: basic calculations
  - 10 digit mantissa, or 10-digit mantissa plus 2-digit exponent up to \( 10^{499} \)
- Fraction calculations
  - Max. 3-digit mantissa for each integer, numerator or denominator and at the same time max. 8-digit mantissa for the sum of each part.

<table>
<thead>
<tr>
<th>Scientific functions</th>
<th>Input range</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \sin x, \cos x, \tan x )</td>
<td>( \left</td>
</tr>
</tbody>
</table>

**Output accuracy**
- \( \pm 1 \) in the 10th digit.
- *Errors are cumulative with such internal continuous calculations as \( \sin x, \cos x, \tan x \), so accuracy may be adversely affected.*